Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Stroke: percentage of ischemic stroke patients with a post-treatment reperfusion grade of thrombolysis in cerebral infarction (TICI) 2B or higher in the vascular territory beyond the target arterial occlusion at the end of treatment with IA thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy.

Source(s)

The Joint Commission. Disease-specific care certification program. Comprehensive stroke: performance measurement implementation guide. Oakbrook Terrace (IL): The Joint Commission; 2015 Mar. 278 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of ischemic stroke patients with a post-treatment reperfusion grade of thrombolysis in cerebral infarction (TICI) 2B or higher in the vascular territory beyond the target arterial occlusion at the end of treatment with intra-arterial (IA) thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy.

Rationale

The Thrombolysis in Cerebral Infarction (TICI) Reperfusion Grade is used to measure cerebral reperfusion. Four results are possible with this scoring system: 0 (no perfusion); 1 (perfusion past the initial occlusion, but no distal branch filling); 2 (perfusion with incomplete or slow distal branch filling); and 3 (full perfusion with filling of all distal branches). Reperfusion past the target arterial occlusion and into the distal arterial bed and terminal branches, in conjunction with recanalization of the target arterial

occlusion, demonstrates flow restoration or revascularization.

The Interventional Management of Stroke (IMS) I trial suggested that the combined use of reduced-dose intravenous (IV) thrombolytic (t-PA) therapy, followed by microcatheter delivered intra-arterial (IA) t-PA therapy, was safe and effective in selected ischemic stroke patients, as compared to patients treated with full dose IV t-PA in the National Institute of Neurologic Disease and Stroke (NINDS) rt-PA trial. In IMS I, a final TICI 2/3 reperfusion was achieved in 62% of ischemic stroke patients treated.

Evidence for Rationale

Adams HP Jr, Brott TG, Furlan AJ, Gomez CR, Grotta J, Helgason CM, Kwiatkowski T, Lyden PD, Marler JR, Torner J, Feinberg W, Mayberg M, Thies W. Guidelines for thrombolytic therapy for acute stroke: a supplement to the guidelines for the management of patients with acute ischemic stroke. A statement for healthcare professionals from a Special Writing Group of the Stroke Council. Circulation. 1996 Sep 1;94(5):1167-74. [102 references] PubMed

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Kole M, Amin B, Marin H, Russman A, Sanders W. Intracranial angioplasty and stent placement for direct cerebral revascularization of nonacute intracranial occlusions and near occlusions. Neurosurg Focus. 2009;26(3):E3. PubMed

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Menon BK, Saver JL, Prabhakaran S, Reeves M, Liang L, Olson DM, Peterson ED, Hernandez AF, Fonarow GC, Schwamm LH, Smith EE. Risk score for intracranial hemorrhage in patients with acute ischemic

stroke treated with intravenous tissue-type plasminogen activator. Stroke. 2012 Sep;43(9):2293-9. PubMed

Rha JH, Saver JL. The impact of recanalization on ischemic stroke outcome: a meta-analysis. Stroke. 2007 Mar;38(3):967-73. PubMed

Sacks D, Black CM, Cognard C, Connors JJ III, Frei D, Gupta R, Jovin TG, Kluck B, Meyers PM, Murphy KJ, Ramee S, RÃ¼fenacht DA, Stallmeyer MJB, Vorwerk D, American Society of Neuroradiology, Canadian Interventional Radiology Association, Cardiovascular and Interventional Radiological Society of Europe, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of NeuroInterventional Surgery, European Society of Minimally Invasive Neurological Therapy, Society of Vascular and Interventional Neurology. Multisociety consensus quality improvement guidelines for intraarterial catheter-directed treatment of acute ischemic stroke, from the American Society of Neuroradiology, Canadian Interventional Radiology Association, Cardiovascular and Interventional Radiological Society of Europe, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of NeuroInterventional Surgery, European Society of Minimally Invasive Neurological Therapy, and Society of Vascular and Interventional Neurology. J Vasc Interv Radiol. 2013 Feb;24(2):151-63. [142 references] PubMed

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Sims JR, Gharai LR, Schaefer PW, Vangel M, Rosenthal ES, Lev MH, Schwamm LH. ABC/2 for rapid clinical estimate of infarct, perfusion, and mismatch volumes. Neurology. 2009 Jun 16;72(24):2104-10. PubMed

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Primary Health Components

Ischemic stroke; thrombolysis in cerebral infarction (TICI) reperfusion grade; intra-arterial (IA) thrombolytic (t-PA) therapy; mechanical endovascular reperfusion therapy

Denominator Description

Ischemic stroke patients treated with intra-arterial (IA) thrombolytic (t-PA) therapy and/or mechanical endovascular reperfusion therapy (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Ischemic stroke patients with a post-treatment reperfusion grade of thrombolysis in cerebral infarction (TICI) 2B or higher

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Unspecified

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Discharges with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Principal Diagnosis Code for ischemic stroke as defined in the appendices of the original measure documentation

AND

Patients with documented thrombolytic (intravenous [IV] thrombolytic or intra-arterial [IA] thrombolytic [t-PA]) therapy (ICD-9-CM Principal or Other Procedure Codes as defined in the appendices of the original measure documentation)

OR

Patients with documented mechanical endovascular reperfusion therapy (ICD-9-CM Principal or Other Procedure Codes as defined in the appendices of the original measure documentation)

Exclusions

Patients less than 18 years of age
Patients who have a Length of Stay greater than 120 days
Patients admitted for *Elective Carotid Intervention* (as defined in the Data Elements)

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Ischemic stroke patients with a post-treatment reperfusion grade of thrombolysis in cerebral infarction (TICI) 2B or higher

Exclusions
None

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Physiologic Health State (Intermediate Outcome)

Instruments Used and/or Associated with the Measure

Comprehensive Stroke (CSTK) Initial Patient Population Algorithm Flowchart
CSTK-08: Thrombolysis in Cerebral Infarction (TICI) Post-Treatment Reperfusion Grade Flowchart
Thrombosis in Cerebral Infarction (TICI) Reperfusion Grade

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

Risk adjustment for this measure is applied to the following data elements:

Admission Date
Birthdate
Hispanic Ethnicity
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) Other Diagnosis Codes
Intravenous (IV) Thrombolytic Therapy Prior to Intra-arterial (IA) or Mechanical Reperfusion Therapy
Initial Blood Glucose Value at Hospital Arrival
Initial Blood Pressure at Hospital Arrival
Initial National Institutes for Stroke Scale (NIHSS) Score at Hospital Arrival
Initial Platelet Count at Hospital Arrival
Proximal or Distal Occlusion
Race
Sex
Site of Primary Vessel Occlusion

Standard of Comparison

not defined yet

Identifying Information

Original Title

CSTK-08: thrombolysis in cerebral infarction (TICI post-treatment reperfusion grade).

Measure Collection Name

Advanced Certification in Disease-specific Care Measures

Measure Set Name

Comprehensive Stroke Standardized Performance Measures

Submitter

The Joint Commission - Health Care Accreditation Organization

Developer

The Joint Commission - Health Care Accreditation Organization

Funding Source(s)

All external funding for measure development has been received and used in full compliance with The Joint Commission's corporate sponsorship policies, which are available upon written request to The Joint Commission.

Composition of the Group that Developed the Measure

Unspecified

Financial Disclosures/Other Potential Conflicts of Interest

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with The Joint Commission's conflict of interest policies, copies of which are available upon written request The Joint Commission.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Mar

Measure Maintenance

This measure is reviewed and updated by the developing organization every 6 months.

Date of Next Anticipated Revision

2015 Jul

Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in April 2016.

Measure Availability

Source available from The Joint Commission Web site .

For more information, contact The Joint Commission at One Renaissance Blvd., Oakbrook Terrace, IL 60181; Phone: 630-792-5800; Fax: 630-792-5005; Web site: www.jointcommission.org .

NQMC Status

This NQMC summary was completed by ECRI Institute on May 19, 2015. The information was verified by the measure developer on June 22, 2015.

The information was reaffirmed by the measure developer on April 6, 2016.

Copyright Statement

Production

Source(s)

The Joint Commission. Disease-specific care certification program. Comprehensive stroke: performance measurement implementation guide. Oakbrook Terrace (IL): The Joint Commission; 2015 Mar. 278 p.

Disclaimer

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